Table A-1

Dummy Variables Used in the Regression Analysis

Variable	Definition
UNE	1 if the CLECs main line type is UNE 0 otherwise
Resale	1 if the CLEC's main line type is resale 0 otherwise
On-net	1 if the CLEC's main line type is On-net 0 otherwise
Facility	1 if the CLEC's network is split roughly between on-net and UNE or on-net and resale 0 otherwise
UNEResale	1 if the CLEC's network is split roughly between UNE and resale 0 otherwise
Business	1 if the firm targets business customers 0 otherwise
Residence	1 if the firm targets residential customers 0 otherwise
RecipComp	1 if the firm is known to rely on reciprocal compensation revenues 0 otherwise

I then use these dummy variables in the model of lagged capital assets regressed on revenues. I estimate and equation similar to equation, but I exclude the firm specific dummy variables and include the business specific dummy variables. This is formally written in equation 2 that follows:

$$lrev_t = b_0 + b_1 lncap_{t-1} + b_2 lcap_{t-1} \cdot Onnet + b_3 lcap_{t-1} Une + b_4 lcap_{t-1} \cdot Resale + b_5 lcap_{t-1} \cdot Facility + b_6 lcap_{t-1} \cdot Business + b_7 lcap_{t-1} \cdot Residence + b_8 lcap_{t-1} \cdot RecipComp + b_9 Onnet + b_{10} UNE + b_{11} Resale + b_{12} Facility + b_{13} Business + b_{14} Residence + b_{15} RecipComp + e_t \quad (2)$$

The parameters $b_0, b_2, \ldots, b_{10}, b_{15}$ are the regression coefficients to be estimated. Note that the variables $lcap_{t-1}$*$UNEResale$ and $UNEResale$ are excluded from the above equation. The effect of *UNEResale* on *lrev*, though both the slope and constant term, is calculated by setting the dummies *Onnet*, *Une*, and *Resale* equal to zero. To be clearer, the parameter b_1 gives the slope coefficient for a facilities based CLEC that serves a combination of both residential and business customers, while the parameter b_0 gives the constant term for that CLEC.

In equation 2, a large, positive coefficient on b_2 would mean that on-net platforms lead to larger rates of conversion of capital assets to revenues than for UNE. Alternatively, a negative value for b_5 would mean that the transfer of capital to revenues tends to be poor for a CLEC that targets only residential customers.

C. The Data

To estimate equations 1 and 2, I use quarterly financial data from 1998 to 2000 reported to the SEC for a list of publicly traded CLECs. Not all CLECs in my sample were publicly traded during all quarters in this time frame. Some CLECs had their initial public offerings after 1998, and some CLECs were either bought out or filed for bankruptcy before the end of 2000. For this reason my total number of observations for the *lrev* variable is 431. Further, I am able to find only 372 observations for *lcap*, resulting in a regression sample of 331 observations after lagging *lcap* one quarter.[101] Below, I include summary statistics for each of my regression variables. Table A-2 includes summary statistics for the full regression sample, while Table A-3 includes

101. The 372 observations of *lcap* do not all have corresponding observations of *lrev*. Thus, the number of lost observations due to lagging *lcap* is less than the number of firms in the sample.

summary statistics for the reduced sample of 221 observations where I was able to identify the type of network platform.

Table A-2
Sample Characteristics of Variables in Analysis, Sample of 331 Observations

Variable	Mean	Standard Deviation	Minimum	Maximum
$lrev_t$	17.084	2.078	9.286	19.832
$lcap_{t-1}$	18.863	1.557	14.347	21.574
$Onnet*lcap_{t-1}$	1.2502	4.814	0	20.530
$UNE*lcap_{t-1}$	5.0134	8.372	0	21.444
$Resale*lcap_{t-1}$	1.5226	4.937	0	19.863
$Facility*lcap_{t-1}$	4.2559	8.309	0	21.574
$UNEResale*lcap_{t-1}$	.8321	3.981	0	21.364
$Business*lcap_{t-1}$	12.631	9.004	0	21.456
$Residence*lcap_{t-1}$	1.432	4.939	0	21.262
$RecComp*lcap_{t-1}$	2.3195	6.464	0	21.444
Onnet	.0634	.244	0	1
UNE	.2659	.442	0	1
Resale	.0876	.283	0	1
Facility	.2085	.406	0	1
UNEResale	.0423	.202	0	1
Business	.6677	.472	0	1
Residence	.0785	.269	0	1
RecComp	.1148	.319	0	1

Table A-3
Sample of 221 Observations Where Network Type is Known

Variable	Mean	Standard Deviation	Minimum	Maximum
$lrev_t$	17.413	1.555	10.937	19.831
$lcap_{t-1}$	19.282	1.503	14.347	21.574
$Onnet*lcap_{t-1}$	1.872	5.796	0	20.530
$UNE*lcap_{t-1}$	7.509	9.291	0	21.444
$Resale*lcap_{t-1}$	2.280	5.901	0	19.863
$Facility*lcap_{t-1}$	6.374	9.487	0	21.574
$UNEResale*lcap_{t-1}$	1.246	4.823	0	21.364
$Business*lcap_{t-1}$	13.735	8.776	0	21.444
$Residence*lcap_{t-1}$	1.399	5.036	0	21.262
$RecComp*lcap_{t-1}$	3.474	7.658	0	21.444
Onnet	.0950	.294	0	1
UNE	.398	.491	0	1
Resale	.131	.338	0	1
Facility	.312	.464	0	1
UNEResale	.063	.244	0	1
Business	.715	.452	0	1
Residence	.072	.260	0	1
RecComp	.171	.378	0	1

D. Estimation Technique

I use the technique of ordinary least squares (OLS), a statistical method that is widely used to estimate the parameters of linear equations, to estimate equations 1 and 2. To give a formal description of the OLS estimator in this particular case, define Y as a $T*N \times 1$ column vector of data for the variable *lrev*. T is the number of time periods, and N is the number of CLECs. Next, define X as a $T*N \times K$ vector of observations for the

right hand side variables, where K is the number of these variables. For example, in equation 1, K is equal to N, because there are $N-1$ firm specific dummy variables, in addition to a constant term. Finally, define U as a $T*N \times 1$ vector of error terms drawn from a random sample with zero mean. Then we can write the equation

$$Y = XB + U \qquad (3)$$

In equation 3, B is a $K \times 1$ vector of regression coefficients that we attempt to estimate. The OLS estimator for B, call it ß, is the vector of parameter estimates yielding a line that minimizes the sum of squared error terms. In equation form, this estimator is written as:

$$\beta = (X'X)^{-1}X'Y \qquad (4)$$

Thus, I apply equation 4 to the relevant data to obtain my estimates of the linear coefficients of interest.

E. Regression Results

1. Controlling for Individual Firms

The results of the first regression analysis are presented in Table A-4. Note that I do not include a few publicly traded CLECs such as Universal Access, Choice One, or Pac West because their initial offerings where not until the year 2000 and there is little data for these firms. For most other public CLECs, however, I do have sufficient observations to conduct the analysis. Note the highly negative and statistically significant estimated coefficients for firms such as SpeedUS.com, Advanced Radio, Allied Riser, and Telocity. These results mean that increases in the capital assets by these firms did not translate into increases in revenues. Not surprisingly, these firms are all performing poorly. SpeedUS.com has stock prices of about 60 cents per share, down from a 52 week

high of $8, and Allied Riser's stock currently trades at around 70 cents per share, down from $20.50 per share. Trading on Advanced Radio has been halted , and Telocity was bought by Hughes at share prices 82 percent below its IPO value.[102]

The estimated coefficients for the two strongest CLECs, Time Warner and McLeod both have positive coefficients, as one would expect. Note, however, that a number of CLECs that are currently performing poorly have positive and statistically significant coefficients, and therefore, this analysis does not fully sort out the successful from the unsuccessful firms. Nonetheless, it does provide insight into a single problem that contributed to the failure of some of these firms.

102. See Table 3, and Appendix 2.

Table A-4
The Productivity of Capital Assets in Generating Revenues

Variable	Estimated Coefficient	White-Huber t-statistic
Lagged Log Cap Assets	-------	-------
Adelphia Business Solutions	0.372	4.46
Allegiance Telecom Inc.	-0.0072	-0.29
Allied Riser	-0.132	-4.03
Advanced Radio	-0.219	-7.45
US LEC Corp	0.027	1.04
CoreComm Ltd.	-0.0026	-0.08
Convergent	0.057	1.93
Covad	-0.023	-0.88
CapRock	0.051	1.81
CTC Communications Corp.	0.046	1.63
Electric Lightwave Inc.	0.0042	0.18
Focal Communications.	0.018	0.71
GST Telecommunications	0.021	0.89
ICG Telecommunications	0.041	1.76
Intermedia Communications	0.065	2.81
Inter-Tel Inc.	0.105	3.71
ITC DeltaCom Inc.	0.036	1.53
McLeod USA Inc.	0.088	3.77
Metromedia	-0.025	-1.07
Mpower	-0.0201	-0.53
Network Access	-0.083	-2.71
Network Plus CP	0.036	1.30
NorthPoint	-0.063	-2.33
North Pittsburgh	-0.0048	-0.19
Net 2000	-0.047	-1.28
Primus	0.103	4.29
RCN Corp.	0.035	1.49
RMI.Net	-0.011	-0.29
RSL	0.124	5.13
Rhythms	-0.090	-3.24
SpeedUS.Com	-0.351	-10.14
Teligent Inc.	-0.091	-3.79
Telocity	-0.151	-4.09
Time Warner TLC	0.026	1.10
World Access	0.054	1.95
Winstar Communications	-0.051	-2.16
XO Comm. (Nextlink)	0.027	1.18
ZTEL	-0.005	-0.15
Non Firm Specific:		
Time Trend	0.137	5.61
Constant Term	9.05	5.91
Sample Size	331	
R^2 (goodness of fit)	0.81	

2. Analysis of Business Practices

While the above analysis gives insight into the efficiency—or non-efficiency, as the case may be—of specific CLECs in converting capital investments into revenues, it does not provide insight into *why* a CLEC will succeed or fail. In order to better determine a CLEC's likely outcome, I now take into account a number of specific business practices that should affect a CLEC's performance. To be specific, I include information on resale, UNE leasing, reciprocal compensation, and the customer base (business, residential, or both). This information is incorporated into the regressions through the use of dummy variables, previously described in Table A-1. Additionally, I multiply these dummy variables by the lagged logarithm of capital assets, an estimation technique that is tantamount to simultaneously estimating a different linear relationship for each type of CLEC.

If a firm targets both businesses and residents, the "Business" and "Residence" dummy variables are both assigned a value of zero. The characteristics of these firms are obtained from analysts' reports, financial reports to the SEC, or other public information. In addition, the UNE, Resale, and On-net variables are based on data from statistics provided in the *Telecom Services—CLECs* report published by Credit Suisse First Boston in April 11, 2001 and June 5, 2000. My characterization of the CLEC for each of these variables is in Table 5 in the text.

Table A-5
The Role of Business Practices in Generating Revenues
(Dependent Variable: Log Revenue in period t)

Variable	Estimated Coefficient	T-stat	White-Huber T
$lcap_{t-1}$	0.275	1.80	0.75
$Onnet*lcap_{t-1}$	2.602	7.53	6.71
$UNE*lcap_{t-1}$	0.717	3.61	1.90
$Resale*lcap_{t-1}$	0.272	1.26	0.70
$Facility*lcap_{t-1}$	1.352	4.67	2.46
$Business*lcap_{t-1}$	-0.126	-1.00	-1.07
$Resident*lcap_{t-1}$	0.220	1.14	0.76
$RecComp*lcap_{t-1}$	-0.135	-0.87	-1.27
Onnet	-53.448	-7.89	-6.83
UNE	-15.085	-3.92	-1.97
Resale	-6.023	-1.50	-0.78
Facility	-28.791	-4.94	-2.52
Business	2.759	1.15	1.28
Residence	-3.592	-0.96	-0.63
RecComp	2.888	0.94	1.41
Cons	13.163	4.36	1.75
Sample Size	221		
R^2 *(Goodness of fit)*	0.63		

In the regression reported in Table A-5, the coefficients for the constant term and $lcap_{t-1}$ should be interpreted as representing a mixture of the resale and UNE strategy.[103]

103.Specific dummy variables cannot be included for this "mixed" strategy because it would make the calculation of the coefficients impossible. In the language of econometrics, the matrix would become "singular".

Probably the most striking results from Table A-5 are the regression coefficients for the on-net dummy variable and the interaction between that variable and the capital assets variable. The coefficient on the interaction term is positive and statistically significant, meaning that we are highly confident in our ability to estimate this coefficient. Further, the coefficient is 2.602, an extraordinarily large value. Because the revenue and assets variable are in logs, or "percent form", the 2.602 means that a one percent increase in capital assets for a CLEC with primarily on-net lines, yields an increase in revenues that is 2.602 percent greater than revenue growth for the average CLEC.

Simply put, firms with on-net lines are able to transfer assets into revenues much more efficiently than a CLEC with another type of platform. The coefficient on the variable *Onnet*, which is equal to –53.45, reflects the high startup cost for a CLEC with primarily on-net lines. Obviously, if a CLEC decides to build a network with mostly on-net lines, the initial fixed cost is much greater than for the typical CLEC. For this reason, the on-net CLEC must wait until it has deployed its own facilities before it can begin realizing large incremental increases in revenues from a state of the art network. Thus, building a primarily on-net system is efficient in the long term, but costly in the short term.

The above facts are even more evident when we explore the effect of UNE and resale lines on revenues. When combined with the on-net strategy, a resale or UNE strategy yields above average revenue growth for each increase in fixed assets, but the growth rate is only 1.352 percent above average for each percentage point increase in revenues, as indicated by the coefficient on *Facility*lcap*. Use of a predominantly resale strategy permits revenue growth that is only 0.272 percent above average for each

percentage point increase in fixed assets. A strategy based primarily on UNE leasing generates a revenue increase that is only 0.762 percent above average for each percentage point increase in capital assets, and a combination of both UNE and resale yields an increase in revenues of 0.275 from a one percent increase in capital assets.[104] In addition, the coefficient for UNE is both large and positive, implying the initial, average revenue growth for a reseller or a UNE type CLEC is larger than for the average CLEC. The above analysis indicates, however, that the long term gains from UNE leasing or resale are much smaller than that experience from building an on-net base of lines.

These results highlight the fact that a CLEC's long term growth prospects are maximized by building its own network. Reselling and leasing an ILEC's network elements may be a good way to get a foot in the door, so to speak, but it is a much better strategy when combined with building out one's own facilities. Without its own facilities, an entrant has added little of value to the industry. This statement is readily evident in the poor revenue performance for the CLECs that rely on reselling, and to a lesser extent to those that rely on UNEs.

Turning attention to the choice of consumer base, the results in Table A-5 suggest no significant difference between a strategy that concentrates on business customers and one that targets residences. The coefficient for "resident" is actually greater than the coefficient for "business," but neither is statistically significant.

104.For reasons explained in the previous footnote, this deduction is based on the size of the estimate of $lcap_{t-1}$ in Table A-5.

APPENDIX 2. ARTICLES CITING CLEC BANKRUPTCY FILINGS AND ACQUISITIONS

Al Lewis, Even The $ 20 Million Man Couldn't Save Convergent, THE DENVER POST (Apr. 22, 2001) at K-01.

Convergent Communications Announces Business Plan to Accelerate EBITDA Breakeven; -Expects to Reach EBITDA Breakeven by Year-End; -Closes Sale of Voice Business, PR NEWSWIRE, (Jan. 29, 2001).

Covad 2000 Financials to be Reported and 10-K Filed the Week of May 7; Covad Receives Nasdaq Delisting Letter, BUS. WIRE (Apr. 23, 2001).

Daniel Bogler, Richard Waters, Ebbers Has Good Reason To Dig Deep For Intermedia: Predators Are Said To Be Circling WorldCom - Which may Explain Its Over-The-Odds Bid, FIN. TIMES (LONDON) (Mar. 23, 2001) at 33.

George C. Ford, McLeodUSA Buys Dallas, Texas-Based Fiber Optic Company to Increase Empire, THE GAZETTE (CEDAR RAPIDS) (Dec. 8, 2000).

IDT in Control at Teligent, THE WASH. POST (May 7, 2001) at E02.

Jennifer Davies, NorthPoint To Shut Off High-Speed Net Service; Bankrupt Company Tells Clients To Seek Options, THE SAN DIEGO UNION-TRIBUNE (Mar. 24, 2001) at C1.

NewsEdge Reports Q1 2001 Operating Results; Content Solutions Continues to Show Momentum; NewsEdge Electronic Publishing Technology Launched, BUS. WIRE, (May 14, 2001).

Peter Elstrom, If Anyone Can Save Excite. . . , BUS. WEEK (May 14, 2001) at 96.
Phil Porter, CoreComm Plans To Sell Businesses, THE COLUMBUS DISPATCH (Apr. 14, 2001), at 1E.

Reinhardt Krause, As Phone Start-Ups Fade, What Carriers Will Get The Spoils? INVESTOR'S BUS. DAILY (Apr. 4, 2001) at 6.

SmartPipes Names Telecommunications Leader President and Chief Executive Officer; Hank Nothhaft, former Chairman and CEO of Concentric and Vice Chairman of XO Communications, Joins as Company Prepares to Launch Advanced IP Services, PR NEWSWIRE (Apr. 23, 2001).

Richard Waters, Teligent Fails to Meet Creditors' Deadline, FINANCIAL TIMES, Edition 2, (May 22, 2001), at 17.

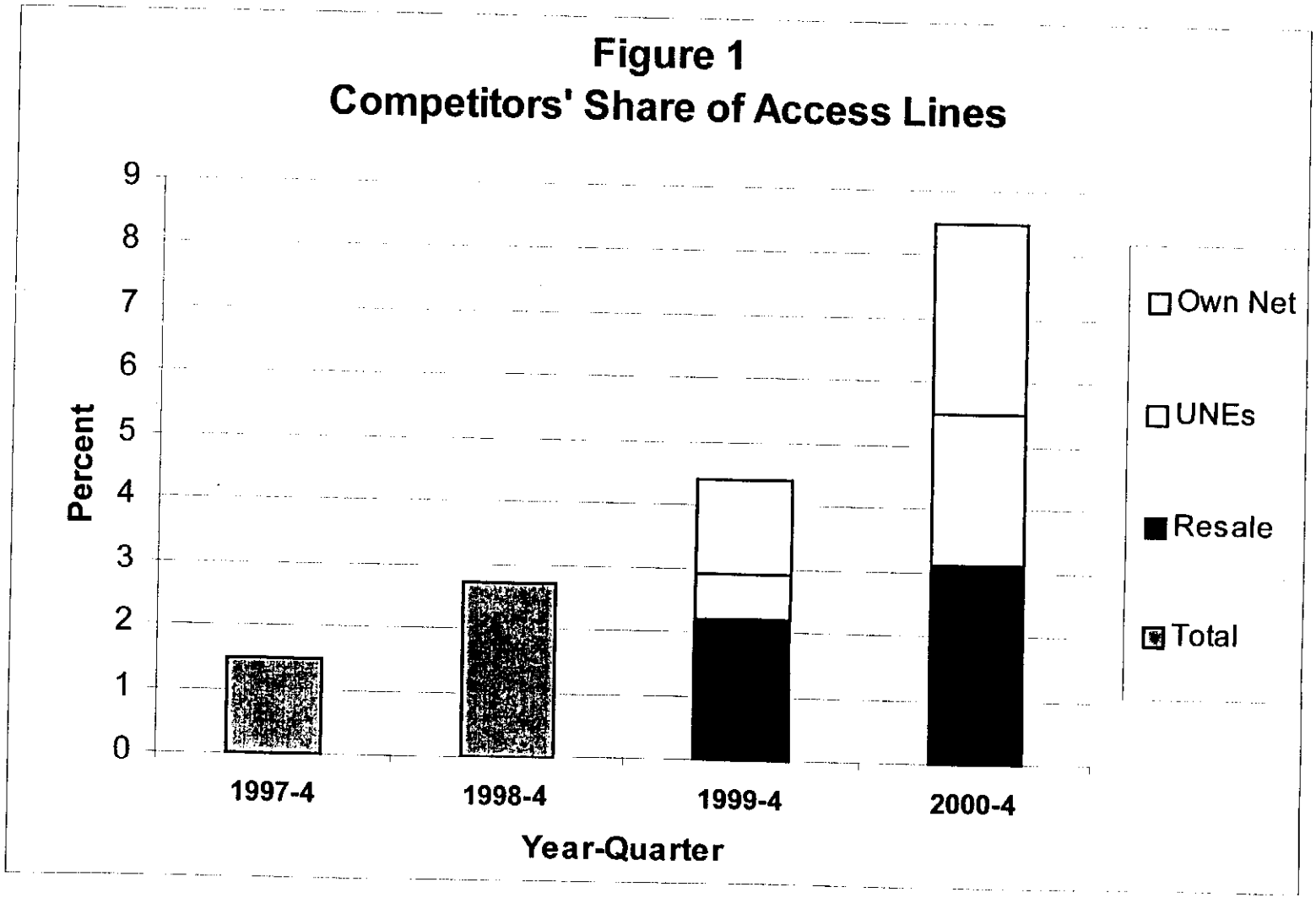
Time Warner Telecom Reports 73% Revenue Increase for the First Quarter of 2001; GST Acquisition Completed and Integration on Track; -Eighth-Consecutive Quarter Increasing Positive Recurring EBITDA -EBITDA Increased 44% Over First Quarter 2000, PR NEWSWIRE (May 7, 2001).

William Glanz, Bankrupt Communications Firm In Herndon, Va., Is Allowed to Borrow $ 25 Million, THE WASH. TIMES (Apr. 11, 2001).

Bethany McLean, "Hear No Risk, See No Risk, Speak No Risk," FORTUNE, 143(10), (May 14, 2001), at 91-98.

Kris Hudson, "Telecom Completes Major Buy; Purchase Expands Reach of Metro Time Warner," DENVER POST, 2ND ED, (January 11, 2001), at C-1.

"Nextlink Pays $2.9 Billion for Concentic Network," THE BUFFALO NEWS, CITY EDITION (January 10, 2000), 1C.

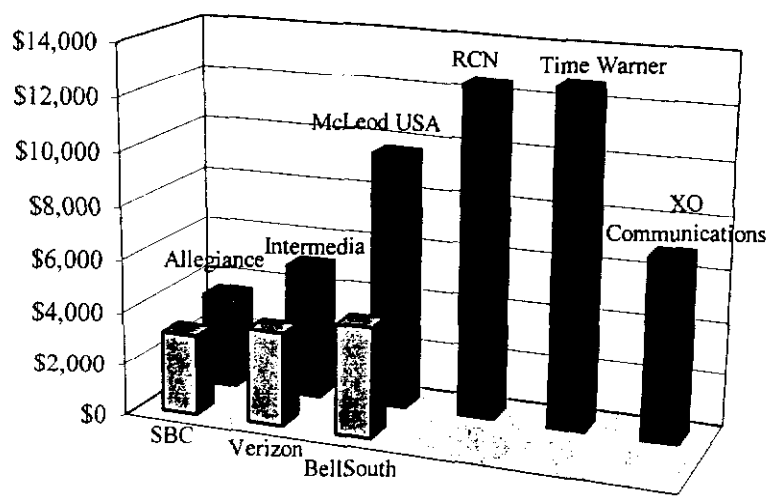


Source: FCC, *Local Competition Reports.*

Table 4. Market Value Per Access Line

Company	Market Value per Switched Access Line
RBOCs	
SBC Communications	$3,100
Verizon	$3,600
BellSouth	$4,200
CLECs	
Allegiance	$3,600
Intermedia	$5,100
McLeod USA	$9,700
RCN	$12,500
Time Warner	$12,700
XO Communications	$6,900

Market Value Per Switched Access Line



Source: *Yahoo Finance*; "Statistics of Communications Common Carriers," *FCC*, (December, 31, 1999), Table 2.6; "Telecom Services—CLECs," *Credit Suisse First Boston Corporation*, (June 5, 2001).

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New Study Shows That Poor Business Plans, Over-Expansion Caused Telecom Carriers' Troubles; Other Companies Succeeded through Solid Network Investment, Careful Expansion

Washington, DC- The new competitive local exchange carriers (CLECs), born in the wake of the 1996 Telecommunications Act, have increased their share of the local telephone market over the past year despite the decline in the equity values of most telecom companies over this same period, according to a new study by Robert Crandall, a senior fellow at the Brookings Institution. The study shows that a number of these new companies are expanding and continuing to attract capital, but many have failed because they pursued poor business strategies and attempted to expand too quickly.

Crandall's report, which was released today at a press conference at the United States Telecom Association (USTA), represents a timely and comprehensive analysis of the CLEC industry. The report found that some CLECs attempted to grow more quickly than the market could sustain, adding new geographic markets before eliminating crucial network operating problems. Others relied too heavily on unsustainable revenues such as reciprocal compensation that ultimately proved harmful to their long-term viability.

"Instead of focusing on fundamentals, too many CLECs opted for rapid expansion," Crandall said. "They put short-term growth ahead of long-term success, and when the capital markets dried up, they paid the price."

The report found, however, that certain facilities-based CLECs have been able to grow dramatically despite the recent stock market contraction. Each has succeeded by deliberately building its own network, carefully analyzing competition and consumer demand prior to market entry, and consistently increasing revenues. These CLECs have been able to successfully combine the resale of incumbent

companies' networks with the construction of their own to form a viable business strategy.

"The 1996 Act never guaranteed that every competitor would be successful," said Gary Lytle, interim president of USTA. "It only guaranteed the right of new competitors to compete on a level playing field. CLECs have captured more than 16 million switched access lines across the country. This number will surely only grow as natural consolidation leaves healthier remaining competitors.

"Interestingly, one of the companies best-positioned to compete in the local residential market-AT&T-has largely ignored this market altogether," Lytle said. "At the same time, AT&T and other cable companies have amassed over 70 percent market share in the broadband services market, while working hard to keep incumbent local phone companies out of this market by opposing efforts such as H.R. 1542-the Internet Freedom and Broadband Deployment Act by Reps. Billy Tauzin and John Dingell. This bill eliminates regulatory barriers incumbent local telcos face when deploying broadband networks and guarantees that all customers will have access to broadband services within five years."

Crandall found no evidence that incumbent local telephone companies were responsible for the financial troubles of some CLECs. "The fact that two of the most successful firms were able to employ a resale and/or unbundled network element strategy as part of their business plan provides strong refutation that the large incumbent local telephone companies are in some way responsible for the recent spate of CLEC failures," he said.

"This new study proves false the accusations some of our critics have made that H.R. 1542 would lead to the demise of the CLEC industry," Lytle said. "The study offers strong evidence that CLECs that have failed have their own bad business plans to blame for their problems. Congress should move forward with H.R. 1542 by bringing it to a vote on the House floor and avoid further delay in bringing broadband services to all Americans," Lytle said.

Since most CLECs are still in an early stage of development, Crandall's report studied the ability of CLECs to translate fixed assets into revenues, rather than profits or market value. That analysis showed some CLECs were able to generate revenue growth through investment in fixed assets, while others showed far less ability to generate revenues from their asset expansions. Additional empirical analysis demonstrated that building one's own network is the best entry strategy, and that carriers that made such investments were far more likely to succeed.

"The most important business decision that determines the success or failure of a particular CLEC is its choice of network platform," Crandall said. "There is strong evidence that CLECs that build their own networks or parts of their own networks, rather than relying simply on reselling the services of the local phone companies, were best able to produce solid revenue gains."

Crandall also found that many CLECs still have impressive market values. Some actually have market values per access line that are substantially higher than the market values per access line of three of the Regional Bell Operating Companies.

"The total market capitalization of all publicly traded CLECs was $95 billion on December 31, 1999," Crandall said. "This was comparable to the market capitalization of the Big Three U.S. auto producers and about three times the market capitalization of the entire airline industry. These companies-like many during the technology stock boom-were clearly overvalued when one considers that combined they had less than five percent of the local exchange telecommunications market in 1999. By May 2001, the value of these firms had fallen to $28 billion-still comparable to the market capitalization of the entire airline industry. And new entrants are continuing to increase their market share-to 8.5 percent in a recent FCC study," Crandall said.

The study noted that the forces of change buffeting the CLEC industry of late are similar to the patterns that have been seen in other industries after deregulation, notably the airline and trucking industries. "When entry is first opened, new competitors flood the marketplace with little history to guide them," Crandall said. "Some succeed, many fail. Bankruptcies ensue, and after an industry shakeout the strong entrants are left standing. The local exchange market is no different."

###

For over a century, USTA has represented the interests of service providers in the dynamic telecommunications industry. Today, USTA is the nation's premier trade association representing the converged telecom industry, serving more than 1,200 telecom companies worldwide that provide local exchange, long distance, wireless, Internet, and cable services.

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EXECUTIVE SUMMARY

An Assessment of the Competitive Local Exchange Carriers Five Years After the Passage of the Telecommunications Act

Robert W. Crandall

The last 16 months have not been kind to most information technology companies, including the new competitive local telephone carriers (CLECs) that have formed since the passage of the 1996 Telecommunications Act. These new local telephone companies' equities rose sharply during the NASDAQ "bubble" in 1999 and early 2000 and then declined just as rapidly. Many of the new entrants failed, but a large number survived as vibrant new competitors in the local telephone business. A detailed study of these survivors, as well as those that failed, shows that a company's choice of business strategy has been the most important determinant its of success or downfall.

Local Telephone Competition is Increasing

According to recent data from the Federal Communications Commission (FCC), the new competitors controlled 8.5 percent of the local telephone lines in the United States at the end of last year, double the total that they had in December 1999. Between 1998 and 2000 the revenues of the publicly traded CLECs increased four-fold. Clearly, local competition is growing.

Three New Local Carriers Stand Out

The most successful of the new entrants are Time Warner Telecom, McLeodUSA, and Allegiance. Each has contributed substantially to competition, employing different business strategies. Time Warner has tripled the number of its customer lines since 1998, and has increased its revenues six-fold during this time. McLeod has shown consistent quarterly revenue growth of ten percent from 1998 to 2000, and it was one of the largest of the new carriers with over $400 million in revenues during the fourth quarter of 2000. In less than three years, Allegiance has grown from scratch to almost $285 million per year in revenues, and its market capitalization of $1.7 billion is one of the largest in the industry. These firms prove that a CLEC can succeed.

Business Strategies Determine Outcomes

The new local entrants with solid business strategies thrive, while those with poor strategies are doomed to failure. Maybe the most important business decision for a CLEC is its choice of network platform. I found very strong evidence that CLECs are best able to produce revenue growth by building their own networks or significant parts of their own networks. CLECs that only resold the established carriers' services were generally unable to convert investments into revenues, and these companies were likely to fail. McLeod has been a stunning exception to the latter rule.

Leasing facilities from the established carriers or reselling their services can work as *part* of an entrant's business strategy, as McLeod and Allegiance have demonstrated. Doing so allows an early jump-start over those building from scratch, but ultimately revenues grow more rapidly if the entrants build their own networks.

Over-expansion has hurt many entrants, particularly in light of the sharp fall of technology stocks in 2000-01. Building network components before a customer base has been established, or providing service before the network is fully functional, places a strain on capital resources and may eventually lead to failure.

Specific Examples

Time Warner is one of the most successful and thrifty CLECs. In January, it expanded by purchasing GST, a failing entrant, funding the purchase during a brief upturn in the market. McLeod and Allegiance are "smart builds." McLeod takes advantage of a unique type of resale—reselling US West's bulk business services. Allegiance leases the most costly network component—the line running up to a building—from the incumbents in order to reduce costs. The latter two firms demonstrate that it is possible to use incumbent companies' facilities, under terms established by the 1996 Telecom Act, and succeed.

On the other hand, another entrant, ICG, expanded too quickly by adding markets before its initial network operating problems were eliminated. Ultimately, it filed for bankruptcy protection, citing service problems and revenue shortfalls. Another entrant, NorthPoint, sold digital subscriber line (DSL) service to Internet Service Providers (ISPs) rather than provide Internet access itself. With the recent financial crunch claiming many Internet firms, many of its customers defaulted on their payments, resulting in NorthPoint's filing for bankruptcy protection. Yet another entrant, Focal, relied too heavily on a gimmick -- collecting reciprocal compensation payments from established carriers for simply placing itself between these established carriers and Internet service providers. When this gambit was revealed and ultimately phased out by regulators, Focal's inefficient network design was exposed, placing it in substantial financial difficulty.

A Common Deregulatory Pattern

Opening any market to competition after years of regulation creates enormous uncertainty. We know from other industries that have been deregulated -- such as trucking and airlines -- that the ultimate competitive structure of the industry takes years to sort out and cannot be predicted in advance. When the market is first opened, new competitors flood the marketplace with little history to guide them. Some succeed; many fail. Bankruptcies ensue, and after an industry shakeout, strong entrants – such as Southwest in the airline industry -- are left standing.

The local exchange market is no different. Time Warner, McLeod, and Allegiance should be around in the long-run, increasing their reach as they add to their networks and